ABSTRACT

THE USEFULNESS OF PLEURAL FLUID ALKALINE PHOSPHATASE AND ITS RATIO TO SERUM ALKALINE PHOSPHATASE LEVELS IN CLASSIFYING PLEURAL EFFUSIONS AS EXUDATES AND TRANSUDATES AND ITS CORRELATION WITH LIGHT'S CRITERIA

V.T.Premkumar[a], J.Sangumani[b], R.Sundaram[c], K .S.Raghavan[c], P.Shanmuganathan[d]

a) **Professor and Head of the Department of General Medicine ,Government Rajaji Hospital and Madurai Medical College**
b) **Professor Department of General Medicine ,Government Rajaji Hospital and Madurai Medical College**
c) **Assistant Professor ,Department of General Medicine, Government Rajaji Hospital and Madurai Medical College**
d) **Post Graduate, Department of General Medicine, Government Rajaji Hospital and Madurai Medical College**

Keyword: Pleural Fluid Alkaline Phosphatase in Exudates

Introduction: Pleural effusion is a very common clinical presentation of diseases. A correct diagnosis of the underlying disease is essential for the management of pleural effusion. A limited number of diseases cause Transudative Pleural Effusion, whereas exudative effusions require more extensive diagnostic investigations. Therefore, the first step is to classify them as transudates or exudates, even if this differentiation does not contribute to the etiological diagnosis.

Many criteria have been used to distinguish them, but none of them have been found to be satisfactory. Light's criteria is the most commonly used method

The criteria is one or more of the following to diagnose exudates.

1. Pleural fluid protein / Serum protein>0.5

2. Pleural fluid LDH/ Serum LDH >0.6

3. Pleural fluid LDH more than 2/3rd of the upper limit of serum

AIMS AND OBJECTIVES

To evaluate the advantages of Total Pleural fluid Alkaline Phosphatase(ALP) and its ratio to Serum Alkaline Phosphatase levels in classifying Pleural Effusions as Exudates or Transudates.

MAREIALS&METHOD

This study is to be conducted among 60 patients with pleural Effusion , attending the Department of Medicine & Department of Thoracic Medicine in Govt. Rajaji Hospital, Madurai.

METHODOLOGY

This study was conducted in Govt. Rajaji Hospital, Madurai which is affiliated to Madurai Medical College. This study subjects were selected from the patients admitted in Department of Medicine and Department of Medicine , Govt. Rajaji Hospital.

The study was conducted in 60 patients; the patients had pleural effusion with clinical background of congestive cardiac failure, chronic liver disease, chronic kidney disease, tuberculosis, parapneumonic effusions , malignancy.

RESULT

"By applying Light's criteria in patients with exudative pleural effusion classified clinically, 81.8% % of the cases were correctly diagnosed as exudative pleural effusion.

By applying Pleural fluid Alkaline phosphatase in patients with exudative pleural effusion classified clinically, 87.8% of the cases were correctly diagnosed as exudative pleural effusion.

Among the parameters used most specific test to classify an exudative pleural effusion from a transudative pleural effusion is pleural fluid total protein which is 95.45 % and most sensitive test is pleural fluid / serum alkaline phosphatase ratio which is 93.90 %. The positive predictive value, negative predictive value and diagnostic accuracy to classify an exudative pleural effusion from a transudative pleural effusion is higher for pleural fluid total protein which is 96.29 % , 95.23 % , 94 % respectively .

CONCLUSION

For many decades Light's criteria had been used widely to differentiate exudative from transudative pleural effusion. But it also misclassified 25 % of transudates as exudates, so there was a need to identify new parameters which would prove to be superior or supportive to the array of tests at present.

From our study we came to known that there was no statistically significant difference among various criteria in classifying pleural effusion as exudates and transudates.

REFERENCES

I. R.W. Light, M.I. Macgregor, P.C. Luchsinger, W.E. Ball, Pleural effusions: the separation of transudates and exudates, Ann. Intern. Med. 77 (1972) 506–513

II. R.W. Light, Update on tuberculous pleural effusion, Respirology 15 (2010) 451–458.

III. A. Lone Mushtaq, Abdul Wahid, S.M. Saleem, Alkaline phosphatase in pleural effusions, Indian J. Chest Dis. Allied Sci. 45 (2003) 161–163.

IV. Isabel Gazquez, Jose Manuel Porcel, Manuel Vives, et al, Pleural alkaline phosphatase in separation of transudative and exudative pleural effusions, Chest 112 (1997) 569–570.

V. K. Tahaoglu, O. Kizkin, R. El, Alkaline phosphatase: distinguishing between pleural exudates and transudates, Chest 105 (1994) 1912–1913.